

6471

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| Form 504 Rev. April 1935 DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY | |
| DESCRIPTIVE REPORT | |
| Topographic Hydrographic | Sheet No. H-6471 |
| U. S. COAST & GEODETIC SURVEY LIBRARY AND ARCHIVES SEP 28 1940 Acc. No. _____ | |
| State _____ Massachusetts | |
| LOCALITY Nantucket Sound | |
| <u>Point Gammon to Herring River</u> Herring River to Point Gammon | |
| 1939 | |
| CHIEF OF PARTY F. L. Gallen | |

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO. H 6471

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 1004

H6471

REGISTER NO. H 6471

State Massachusetts

General locality Nantucket Sound

Locality Herring River to Point Gammon
~~Point Gammon to Herring River~~

Scale 1/10,000 Date of survey Aug. 1 - Sept. 8, 1939

Vessel Skiffs and Launch 75

Chief of Party F. L. Gallen

Surveyed by Chas. A. Schanck

Protracted by R. M. Rader

Soundings penciled by R. M. Rader

Soundings in ~~fathoms~~ feet

Plane of reference Mean low water

Subdivision of wire dragged areas by

Inked by C. E. Dennis

Verified by do

Instructions dated April 1 and July 1, 1939

Remarks: Protracted and soundings penciled at the Norfolk

Processing Office under the supervision of John H. Brittain

Smooth Sheet H-6471 (Field No. 1004)

Prepared in Washington office January 29, 1940.

Projection lines, shoreline, triangulation stations and air-photographic stations between longitudes 70 06 and 70 14 and north of Lat. 41 38 were printed from air photographic survey T-5739. ✓

Projection lines south of Lat. 41 38 and west of Long. 70 14 were plotted by H. D. Reed and inked by J. P. Dunich. ✓

Shoreline, triangulation stations and air photographic stations west of Long. 70 14 were transferred in projector from T-5740, by J. P. Dunich and checked by R. E. Elkins. ✓

Hydrographic stations transferred from T-5740 in projector, were checked by scaling with dividers from T-5740. ✓

Triangulation stations Gammon, 1934 and Pt. Gammon L.H., 1934 were checked with geographic positions. ✓

Triangulation stations West Yarmouth Cape Cod Laundry Stack 1934, West Yarmouth Englewood Hotel Water Tank 1934 and Pt. Gammon Water Tower 1934, were plotted with geographic positions by George E. Varnadoc and checked by H. J. Bozzo. ✓

DESCRIPTIVE REPORT

To Accompany Hydrographic Sheet No. H-6471

INSTRUCTIONS - The work on this project (HT-217) was executed under instructions dated April 1, 1939, July 1, 1939 and instructions of 1938 addressed to the Commanding Officer of the M. V. GILBERT.

LIMITS - This sheet covers the inshore section of Nantucket Sound, along the south shore of Cape Cod, from a junction with sheet field No. 1003, ^{H-6470 (1939)} in the vicinity of Point Gammon, eastward to a junction with sheet field No. 1005, ^{H-6472 (1939)} in the vicinity of Herring River. It extends southward offshore approximately to Lat. 41 37.3 to a junction with the work of the M.V. GILBERT, ^{H-6434 (1939)} It includes an investigation of the water in Lewis Pond and Parkers River and a survey of the Bass and Herring Rivers to the head of navigation.

SURVEY METHODS - The hydrography performed on this sheet was all by sextant fix and hand lead sounding. The majority of the signals used for control were located by triangulation or aerial photographic surveys. A few were located by sextant cuts or a combination of sextant cuts and sextometer distances. Three different small boats were used in executing the hydrography on the sheet. One 16 ft. skiff, one 25 ft. skiff (each propelled by outboard motors) and a 30 ft. launch, No. 75, were used..

DISCREPANCIES - There are no discrepancies known to exist on this sheet.

DANGERS - The dangers on this sheet are approximately the same as indicated on chart No. 1209. A narrow ridge of shifting sand with a least depth of 2½ feet, known locally and charted as Dogfish Bar extends from the vicinity of Lat. 41 37.2, Long. 70 14, to the vicinity of Lat. 41 37.7, Long. 70 12.6. Sand spits are building around the old breakwater at Lat. 41 38.3, Long. 70 10.6. The most important danger on this sheet is Kill Pond Bar because it extends offshore more than a mile beyond the limits of equal depths in adjacent areas and into waters of sufficient depth to otherwise permit the passage of moderate draft boats. It has a least depth of 12 feet as far southeast as Lat. 41 37.35, Long. 70 06.85; a least depth of 6 feet as far southeast as Lat. 41 37.65, Long. 70 07.1, and is generally shoal all the way inshore. A danger buoy is maintained off the southeast end of this bar in 26 ft. of water.

Generally speaking, all the area inside the 2 fathom curve on this sheet has irregular bottom with numerous sand shoals of 1 fathom or less.

There is one danger in the channel in Bass River. At Lat. 41 39.07 ²⁵ Long. 70 11.86, a barge load of rock was dumped at some past date and

a number of 3½ ft. soundings were found on rock in the channel. See positions 129 to 146 j day. This danger is not buoyed by the local boatmen but a buoy is ^{privately} maintained about 80 meters east of the danger. This buoy marks the west edge of a shoal and local boatmen avoid the rocks by passing this buoy close by.

CHANNELS - There are no important channels on this sheet. Local boatmen keep the best water entering Bass River marked during the summer months. The channel into the river has a controlling depth of 2½ feet and shifts as southeast winds shift the loose sand around the entrance. There is even less water at the entrance to Herring River. It had a least depth of 2 feet when the survey was made, but ~~had shoaled to about 1 foot before the survey of sheet 1005 was completed.~~ ^{H-6472 (1939)} According to local reports it varies from ½ to 4 feet, depending on the influence of the scouring action of the river current and the effect of southeast winds on the loose sand near the river mouth.

COMPARISON WITH CHART AND PREVIOUS SURVEYS - In general the soundings on this sheet compare closely with those shown on Chart 1209 and bromides of the previous survey. In the vicinity of Dogfish and Kill Ponds Bars, similar depths were found though often one to two hundred meters away from their original location. In as much as both these bars are formed of loose shifting sand and the shoal depths of the old survey were investigated when found to vary from the new survey, it is recommended that the soundings of the present survey be accepted and the old work be considered obsolete due to shifting of the sand bottom.

Discrepancies of four feet were found at three different locations between the soundings shown on Chart 1209 and the soundings obtained during the course of the work on this sheet. In each instance the Chart shows less water than was found by the party in 1939. These spots are as follows: Lat. 41 36.7, Long. 70 14.15, chart shows 10 feet, least depth found 14 feet; Lat. 41 37.25, Long. 70 12.67, chart shows 14 feet, least depth found 18 feet; Lat. 41 37.89, Long. 70 08.89, chart shows 10 feet, least depth found 14 feet. These discrepancies were noted when the regular system of sounding lines were run. Then temporary buoys were dropped at the points and a system of development lines run. When these lines failed to indicate the shoals, from 50 to 100 soundings were taken at each site, while drifting around the buoy. These soundings were not recorded unless they were less than found while running the system of lines. Since the development work failed to indicate the depths shown on the chart, it is recommended that the charted depths be rejected unless they are based on something more than a single sounding, as is believed to be the case. Par. 5
and 6a,
Rev.

GEOGRAPHIC NAMES - All geographic names shown on chart 1209 in the area covered by this sheet were verified by two or more local residents and found to be correct. The following list of names in addition to those now charted were obtained from two or more local residents: Horseshoe Cove, Old Field Point, Stage Island, The Run, Herring Brook, Kellys Pond and Donalds Pond. The record with the names and addresses of the parties furnishing these names was burned at the time of the explosion

and fire on the Launch MIKAWA.

It is recommended that any or all of these names be accepted if they are further verified by a report by the Air Photo Inspection Party. ✓

Approved by,

F. L. Gallen

F. L. Gallen
H. & G. Engineer
Chief of Party

Submitted by,

Charles A. Schanck

C. A. Schanck
Jr. H. & G. Engr.

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. **..H6471**

The following statistics will be submitted with the
cartographer's report on the sheet: '

| | |
|---|----------------|
| Number of positions on sheet | 3082 |
| Number of positions checked | .256. |
| Number of positions revised | ..3... |
| Number of soundings recorded | 18362 |
| Number of soundings revised | ..15... |
| Number of soundings erroneously spaced | ..39... |
| Number of signals erroneously plotted or transferred | |

Date: **3/14/41**

Verification by **C.E. Dennis** + **J.A. McCormick** Time: **81 hr**
8 hr.

Review by **J.A. McCormick**, **3/20/41.** Time: **20 hr.**

HYDROGRAPHIC SURVEY NO. 116471

Smooth Sheet One

Boat Sheet One

Records; Sounding 12 Vols., Wire Drag ____ Vols., Bomb ____ Vols.

Descriptive Report Yes

Title Sheet Y 8

List of Signals Yes

Landmarks for Charts (Form 567) -----

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) _____

Special Chart for Lighthouse Service June 14, 1940
(Circular Nov.30, 1933)

Hydrography: Total Days 22 ; Last Date Sept. 8, 1939

Remarks _____

7776

Remarks

Decisions

| | | |
|----|-----------|----------|
| 1 | | 416701 |
| 2 | | " |
| 3 | | " |
| 4 | | " |
| 5 | | " |
| 6 | | 416702 |
| 7 | | 416701 |
| 8 | | U.S.G.B. |
| 9 | | 416701 |
| 10 | | " |
| 11 | | " |
| 12 | | 416702 |
| 13 | | " |
| 14 | | " |
| 15 | | 416701 |
| 16 | For title | 416702 |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |
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| 24 | | |
| 25 | | |
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| 27 | | |

GEOGRAPHIC NAMES

Survey No. **H6471**

| GEOGRAPHIC NAMES | | Survey No. H6471 | | | | | | | | | | | |
|--|-----|-------------------------|------|-----|----------|---|---|---|---|----|----|--|--|
| Name on Survey | | | | | | | | | | | | | |
| | A | B | C | D | E | F | G | H | K | | | | |
| <u>Donalds Pond</u> ✓ | | | | | | | | | | 1 | | | |
| <u>Herring Brook</u> ✓ | | | | | | | | | | 2 | | | |
| <u>Horseshoe Cove</u> ✓ | | | | | | | | | | 3 | | | |
| <u>Kellys Pond</u> <u>Kelleys Pond</u> (U.S.G.B. 4/7/42) | | | | | | | | | | 4 | | | |
| <u>Old Field Point</u> ✓ | | | | | | | | | | 5 | | | |
| <u>The Run</u> <u>Crowell Pond</u> (U.S.G.B. 4/7/42) | | | | | | | | | | 6 | | | |
| <u>Herring River</u> ✓ | | | | | | | | | | 7 | | | |
| <u>Nantucket Sound</u> ✓ | | | | | | | | | | 8 | | | |
| <u>Swan Pond River</u> ✓ | | | | | | | | | | 9 | | | |
| <u>Bass River</u> ✓ | | | | | | | | | | 10 | | | |
| <u>Kill Pond Bay</u> | See | chart | 1209 | For | location | | | | | 11 | | | |
| <u>Dogfish Bar</u> | " | " | " | " | " | " | " | " | " | 12 | | | |
| <u>Parkers River</u> ✓ | | | | | | | | | | 13 | | | |
| <u>Lewis Pond</u> ✓ | | | | | | | | | | 14 | | | |
| <u>Brand Cove</u> ✓ | | | | | | | | | | 15 | | | |
| <u>Point Gammon</u> ✓ | | | | | | | | | | 16 | | | |
| Names underlined in red approved | | | | | | | | | | | 17 | | |
| by L. Heck on 3/26/41 | | | | | | | | | | | 18 | | |
| | | | | | | | | | | 19 | | | |
| | | | | | | | | | | 20 | | | |
| | | | | | | | | | | 21 | | | |
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| | | | | | | | | | | 24 | | | |
| | | | | | | | | | | 25 | | | |
| | | | | | | | | | | 26 | | | |
| | | | | | | | | | | 27 | | | |

H6471

STATISTICS

| Date | Day | Statute Miles | Soundings | Positions |
|---------|-----|---------------|-------------|------------|
| Aug. 1 | a | 23.4 | 767 | 126 |
| 4 | b | 7.0 | 240 | 39 |
| 7 | c | 31.8 | 1307 | 216 |
| 8 | d | 19.9 | 808 | 145 |
| 9 | e | 17.8 | 1034 | 158 |
| 11 | f | 35.6 | 1211 | 205 |
| 14 | g | 40.9 | 1357 | 222 |
| 15 | h | 42.0 | 1355 | 223 |
| 16 | j | 33.9 | 1196 | 195 |
| 17 | k | 25.4 | 908 | 154 |
| 18 | l | 26.3 | 1018 | 184 |
| 21 | m | 7.2 | 280 | 39 |
| 22 | n | 3.2 | 165 | 40 |
| 23 | p | 17.9 | 801 | 152 |
| 24 | q | 10.1 | 530 | 90 |
| 28 | r | 16.7 | 818 | 146 |
| 29 | s | 8.0 | 368 | 81 |
| Sept. 1 | t | 28.3 | 1143 | 170 |
| 5 | u | 13.9 | 642 | 112 |
| 6 | v | 28.5 | 1232 | 177 |
| 7 | w | 16.8 | 773 | 125 |
| 8 | x | 8.6 | 409 | 83 |
| | | <hr/> 463.2 | <hr/> 18362 | <hr/> 3082 |

RAC.
HRE

TIDE NOTE FOR HYDROGRAPHIC SHEET

October 9, 1940

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. H. R. Edmonston

Plane of reference approved in
12 volumes of sounding records for


HYDROGRAPHIC SHEET 6471

Locality Point Gammon to Herring River, Nantucket Sound

Chief of Party: F. L. Gallen in 1939
Plane of reference is mean low water reading
1.0 ft. on tide staff at Hyannisport
18.4 ft. below B. M. 4 (1902)
2.8 ft. on tide staff at Herring River
9.3 ft. below B. M. 1
1.7 ft. on tide staff at Bass River
5.7 ft. below B. M. 1 A.

Height of mean high water above plane of reference is 3.1 feet at
Hyannisport; 3.7 feet at Herring River; 2.9 feet at Bass River.

Condition of records satisfactory except as noted below:


Acting Chief, Division of Tides and Currents.

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT
PHOTOSTAT OF

No. H **16471**
~~No. 16471~~

received Sept. 28, 1940
registered Oct. 4, 1940
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

| ROUTE | | Initial | Attention called to |
|-------|---|---------|---------------------|
| 20 | | | |
| 22 | | | |
| 24 | | | |
| 25 | ✓ | HBC | Pages 1 and 2 |
| 26 | | | |
| 30 | | | |
| 40 | | | |
| 62 | | | |
| 63 | | | |
| 82 | | | |
| 83 | | | |
| 88 | | | |
| 90 | | | |
| | | | |
| | | | |

RETURN TO

| | |
|----|------------|
| 82 | T. B. Reed |
|----|------------|

✓ JBSOR

VERIFIER'S REPORT OF HYDROGRAPHIC SURVEY NO. H

Verified and Inked by *C.E. Derritis*

Date *3/14/41*

1. The descriptive report was consulted and appropriate action taken. ✓
2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude. ✓
3. All references to survey sheets mentioned in the descriptive report include the registry number and year. ✓
4. Geographic names of hydrographic features are in slanting lettering and of topographic features in vertical lettering. ✓
5. All items effecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken. ✓
6. All positions verified instrumentally were check marked in the sounding records. ✓
7. All critical soundings are clear and legible. ✓
8. The metal protractor has been checked within the last three months. ✓
9. The protracting and plotting of all bad crossings were verified. ✓
10. All detached positions locating critical soundings, rocks or buoys were verified. ✓
11. The boat sheet was compared with the smooth sheet. ✓
12. The spacing of soundings as recorded in the records was closely followed. ✓
13. The bottom characteristics were shown on outstanding shoals. ✓
14. The reduction and plotting of doubtful soundings were checked. ✓

15. The transfer of contemporary topographic information was carefully examined. ✓
16. All junctions were transferred. ✓
17. The notation "JOINS H " was added for all contemporary adjoining or overlapping sheets now registered. ✓
18. The depth curves have been drawn to include the significant depths. ✓
19. All triangulation stations and transfer of topographic and hydrographic signals were checked by the field party. ✓
20. Heights of rocks were checked against range of tide. ✓
21. Rocks transferred from topographic survey have a dotted curve where shown thereon. ✓
22. Unnecessary pencil notes have been removed. ✓
23. Objects on which signals are located and which fall outside of the low water line have been described on the sheet. ✓
24. The low water line and delineation of shoal areas have been properly shown (see letter of October 20, 1934). ✓
25. Degree and minutes values and symbols have been checked. ✓
26. Source of shoreline and signals (When not given in report). ✓

27. Depth curves were satisfactory except as follows:

(at junction with 6534.)
The irregularity in the 18 ft curve at 41°-37.9' and 178°-10.2' (See (29))
was left as shown because of the large number of 18' soundings although
they all could be changed to 18½ ft and the curve smoothed out. O.K.

28. Sounding line crossings were satisfactory except as follows: ✓

29. Junctions with contemporary surveys were satisfactory except as follows: ✓

The junction with H6534 shows soundings on 6534 1 to 2 feet shallower than is probably because 6534 was made with fathometer while H671 was made with lead line. A butt junction was made and not soundings left in parallel.

30. Condition of sounding records was satisfactory except as follows: ✓

31. The protracting was satisfactory except as follows: ✓

32. The field plotting of soundings was satisfactory except as follows: ✓

33. Notes to reviewer: The wreck at 41°-37.9' and 70°-13.3' was drawn so as to

include 43E and 44E, which are the ends of the wreck, instead of using usual symbol.

DIVISION OF CHARTS

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6471 (1939) FIELD NO. 1004

Massachusetts; Nantucket Sound; Herring River to Point Gammon
Surveyed in August - September 1939, Scale 1:10,000
Instructions dated January 17, 1938 (GILBERT)
April 1 and July 1, 1939 (MIKAWA)

Soundings:

Control:

Hand Lead

Sextant Fixes on Shore Signals

Chief of Party - F. L. Gallen
Surveyed by - C. A. Schanck
Protracted by - R. M. Rader
Soundings plotted by - R. M. Rader
Verified and inked by - C. E. Dennis
Reviewed by - J. A. McCormick, March 20, 1941
Inspected by - H. R. Edmonston

1. Shoreline and Signals

Shoreline and air photographic signals are from topographic maps T-5739 and T-5740. Shoreline revised by the field party is indicated in red. Hydrographic signals and their location data are listed in the sounding volumes.

2. Sounding Line Crossings

Satisfactory.

3. Depth Curves

Satisfactory.

4. Junctions with Contemporary Surveys

Satisfactory junctions were effected with H-6470 (1939) on the west and with H-6472 (1939) on the east. Fathometer soundings of H-6534 (1939) on the south average about 2 feet shoaler than overlapping hand lead soundings of the present survey. Such discrepancies occur almost invariably where Dorsey Fathometer and hand lead soundings join and usually are ascribed to bowed or inclined lead line. Sounding speeds of 6 and 7

knots on the present survey may be responsible for part of the discrepancy even with the MIKAWA'S experienced leadsmen, but it is also possible that the fathometer soundings tend to be on the shoal side in any kind of a chop.

5. Comparison with Prior Surveys

H-184 (1847), 1:20,000; H-245 (1849), 1:20,000;
H-455a (1854), 1:40,000; H-527 (1855-56), 1:30,000;
H-1243 (1874), 1:20,000; H-1948 (1889), 1:20,000

H-1948 is the only one of the above surveys executed according to standards approaching those of the present work. The others are generalized to a considerable extent. H-1948 is in fair to good agreement with the present survey. Principal differences are as follows:

- a. 11-1/2 feet (10 on chart 1209) in Lat. 41° 36.7', Long. 70° 14.1' on H-1948; 13 to 16 feet on present survey.
- b. 3-1/2 feet (charted 3) in Lat. 41° 38.1', Long. 70° 12.0' on H-1948; 7 feet on present survey.
- c. 4-1/2, 5-1/2, 5-1/2 and 6 feet (charted 4, 4, 4 and 6) on Kill Pond Bar in Lat. 41° 38', Long. 70° 08' on H-1948; 6, 8, 6, and 8 feet on present survey.
- d. 10 feet (charted) in Lat. 41° 37.9', Long. 70° 08.9' on H-1948; 14 to 16 feet on present survey. This last appears to be a one-fathom error on the old survey.

There are as many or more instances where the present survey is the shoaler of the two but these present no cartographic problems. Development on the present survey is fairly conclusive proof that items (a) to (c) are normal differences resulting from shifting of the sand bottom (Descriptive Report, page 2). The present survey adequately covers the area without retention of any depths from older surveys.

6. Comparison with Chart 247 (New Print of July 11, 1940) Chart 1209 (New Print of July 2, 1940)

a. Hydrography

Most of the depths charted in this area originate

with H-1948 (1889), discussed in the preceding paragraph. Those in the Bass River are from outside sources and are in fair agreement with the present survey. The 14 charted in Lat. $41^{\circ} 37.3'$, Long. $70^{\circ} 12.7'$ is an error in application of H-1948 to the first edition (1919) of chart 1209. The 14 does not appear on chart 111 (obsolete).

b. Aids to Navigation

The two channel buoys charted at the entrance to Bass River were not located on the survey. The buoy shown inside the Bass River jetties on the survey apparently is maintained privately and is not charted. Other navigational aids in the area were found to be substantially as charted.

7. Condition of Survey

Satisfactory.

8. Compliance with Instructions for the Project

Satisfactory.

9. Additional Field Work Recommended

None.

10. Superseded Surveys

H-184 in part
H-245 " "
H-455a " "

H- 527 in part
H-1243 " "
H-1948 " "

Examined and approved:

Thos. B. Reed

Thos. B. Reed,
Chief, Section of Field Records

J. B. Borden

Chief, Division of Charts

C. K. Green

Chief, Section of Hydrography

G. H. de

Chief, Division of Coastal
Surveys

NAUTICAL CHARTS BRANCH

SURVEY NO. H-6471

Record of Application to Charts

[illegible]

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

appline & Chart 1209 - July 1941 - D.S.B.
 " " " 1107 Aug. " J.M.A.
 " " " 70 " " J.M.A.
 " " " 247 Jan. 1942 B.P.
 " " " 258 Mar. " B.R.